Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

Reserve
P69238

LIBRARY
RECEIVED
FEB 7 - 1957
U.S. DEPT. OF AGRICULTURE

(SECOND EDITION.)

B. P. I.—135. S. P. I. D.—13.

United States Department of Agriculture,

BUREAU OF PLANT INDUSTRY,

Seed and Plant Introduction and Distribution,

WASHINGTON, D. C.

DISTRIBUTION OF COTTON SEED IN 1905.

The present will be the third distribution of cotton seed carried on by this office with the cooperation of Dr. Herbert J. Webber, of the Laboratory of Plant Breeding.

During the past two years distribution has been made of seventeen varieties of cotton, every one of which was carefully selected by Doctor Webber because of special local value.

From the reports so far received it is evident that, as a rule, the seed sent out by the Department was better than that commonly grown. The distribution of the present year will add seven varieties to those previously distributed.

In general the Department will not duplicate the distribution of a variety, so that those who are pleased with the variety sent this year are urged to save their own seed.

A. J. PIETERS,
Botanist in Charge.

Approved:

B. T. GALLOWAY,
Chief of Bureau.

WASHINGTON, D. C., *January 13, 1905.*

PLAN OF DISTRIBUTING THE VARIETIES.

The Bureau of Plant Industry has in progress investigations in the improvement of cotton, and as a foundation for such work it is necessary to determine the varieties best suited to each section of the cotton belt. The distribution of cotton seed is thus arranged with the view of furnishing growers with seed of new varieties to test in comparison with the varieties they already grow. This will enable them to make comparisons and select varieties best suited to their climatic and soil conditions. Information regarding the adaptability of varieties to different sections is as yet too meager to enable a judgment to be formed as to which will succeed best in certain localities.

In the distribution of cotton seed it is proposed to select, so far as possible, new and little-known varieties which have proved valuable in certain localities, and to distribute the seed in such a way as to insure their being generally tested throughout the cotton States. It is intended at the end of the season to follow up each package with a circular, in order to obtain information in regard to the results. Growers receiving the seed are urged to cooperate with the Department of Agriculture by making a careful test of the seed which is sent with this circular. In another part of the circular will be found descriptions of the varieties distributed and a statement of the points on which information is desired.

In the distribution the present year several special features have been introduced. The studies of the cotton industry which the Department has been prosecuting indicate strongly that the growing of long-staple cottons, especially those of medium length, is destined to become much more general in the near future, and should be encouraged. In 1903, Griffin and Allen Improved, two of the best long-staple Upland cottons, were distributed, and in 1904 seed of a new variety—the Sunflower—was distributed. This year specially selected seed of the old and well-known variety—Southern Hope—has been secured. It produces a fine staple averaging from $1\frac{1}{4}$ to $1\frac{5}{16}$ inches in length, which is in demand and sells at a premium. The variety is early and productive, and is one of the best sorts of its class.

In the infested districts of Texas within the last few years very early varieties have been largely cultivated in order to escape injury from the boll weevil. None of the early types, however, such as King and

Shine, have given thorough satisfaction owing to their small bolls, short coarse lint, and the ease with which they drop their seed cotton in storms. Extensive variety tests conducted by the Plant-Breeding Laboratory of the Department during the past summer have resulted in calling attention to several other little-known varieties, which give promise of being valuable for general cultivation in boll-weevil districts. Seed of three of these, Hagaman, Strickland, and Triumph, which are among the most promising, have been secured especially for distribution in Texas. While these are to be classed as ordinary short-staple cottons, they produce excellent lint about $1\frac{1}{8}$ to $1\frac{3}{16}$ inches in length, and are thus much better than King or Shine in this respect. The Strickland and Triumph are big-boll types, but are not quite so early as the Hagaman, which has medium-sized bolls.

The other varieties of short-staple Upland cottons selected for distribution this year are Culpepper and Texas Wood. All of the above strains of Upland cottons, except the Triumph, will be distributed equally, as far as possible, in all of the cotton-growing States. The seed of the Triumph obtained for distribution was grown in a boll-weevil infested region, and will be distributed only in Texas.

Another special feature of the distribution the present season is the Centerville Sea Island cotton, a variety resistant to the serious malady known as wilt. This variety has been produced in the course of the breeding experiments of the Department, and is to be recommended for cultivation in portions of Georgia and Florida where the wilt is prevalent.

DESCRIPTIONS OF VARIETIES DISTRIBUTED.

Short-Staple Upland Varieties.

CULPEPPER.

(Pl. I, fig. 1.)

Culpepper is an improved big-boll variety originated by Mr. J. E. Culpepper in Merriwether County, Ga., in 1890. It is said by Mr. Culpepper to have been produced by the hybridization of the Wyche and Dixon varieties, and to have been selected through some five years to fix and improve the type. It is reported to be hardier and more prolific than either of the parents and to produce a better staple; also to stand drought very well and shed its bolls very little.

The variety is well known locally and has been tested at the Georgia and Alabama experiment stations, where it gave satisfactory results. In variety tests made by the Department of Agriculture at Columbia, S. C., in the season of 1901 it proved to be one of the best sorts experimented with for that section.

Plant robust, forming long limbs near ground, which gradually become shorter toward the top; bolls, large; locks, 7 to 10 seeded; seeds, gray, tufted, medium size.

averaging in weight from 0.13 to 0.14 gram; lint, 1 to 1⅛ inches in length, of good quality, abundant, giving an average of 32 to 34 per cent. Season of maturity, medium early.

The seed of this variety distributed is of select quality and was grown by J. E. Culpepper, of Luthersville, Ga., in the season of 1904.

HAGAMAN.

(Pl. I, fig. 2.)

The Hagaman cotton, so far as can be learned, originated from a single stalk or possibly from several stalks selected about 1877 by the late Maj. F. V. D. Hagaman on his plantation in West Feliciana Parish, near Jackson, La. The Peeler cotton was grown almost exclusively on the plantation, but it is supposed that the original Hagaman seed came from a variety known as Deane, some of which was being grown on the plantation at that time. The variety was grown and kept pure for many years by Major Hagaman, and one of his friends and neighbors, Mr. Thomas J. Fishburn, who furnished the present data, also grew the variety and took considerable pains to improve it. In the quarter of a century or more in which the variety has been grown it has doubtless become considerably mixed, but the fact that it has persisted so long testifies to its value. While an old variety, it is known only locally and has never been generally distributed.

In the test of this variety by the Department of Agriculture during 1904 it proved to be about as early and as productive as King, with bolls fully as large and a much better staple. It is only partially nondropping or resistant to storms, but is better than King in this respect. In length of staple the variety is somewhat variable, ranging from 1 to about 1⅜ inches and averaging between 1⅛ and 1¼ inches. The cotton is somewhat above the average in length and also in fineness, and is said to bring three-fourths of a cent premium over ordinary short-staple cottons in the New Orleans market. The Hagaman cotton is to be strongly recommended wherever an early variety with good staple is desired. It is said to be particularly well adapted to poor land, but is also exceedingly productive on rich soils.

Plant large, erect, vigorous, and somewhat irregular in branching and shape, especially on rich soil; bolls ovate, small, 4 and 5 locked, easily picked; staple 1 to 1⅜ inches in length; per cent of lint about 31.5 to 32. Season of maturity, early.

The seed of Hagaman cotton, distributed by the Department of Agriculture, was furnished by Messrs. M. & E. Wolf, of Bayou Sara, La., and V. M. Jackson, Laurel Hill, La., and was grown in the season of 1904.

STRICKLAND.

(Pl. II, fig. 1.)

Strickland is a big-boll variety originated by Mr. J. R. Strickland, at Gardo, Ala. So far as the Department of Agriculture is aware,

this variety has not become generally known and has never been widely distributed. It gives evidence of being a valuable sort, and should be tested more thoroughly throughout the cotton belt. The fiber is fully 1 inch in length under average conditions, and exceeds this when grown on the rich soils of Texas. It begins putting on fruit early in the season and matures its bolls fairly early, considering their large size. The large, blunt, 5-locked bolls retain the cotton through hard rains and winds as well as the best of the Texas Stormproof type of cottons.

In a variety test of cottons, conducted by the Department of Agriculture last summer at Hillsboro, Tex., this variety was one of the most productive tested, yielding in the first two pickings 1,020 pounds of seed cotton, an equivalent of about two-thirds of a bale per acre. This did not include a third picking of considerable size. The variety has evidently been very well selected, the plants being very uniform and true to type.

Plant large, somewhat spreading, with short joints, well shaped, a vigorous grower, productive, with heavy foliage; bolls ovate, blunt-pointed, unusually large; lint of good quality, fully 1 inch and over in length; per cent of lint to seed cotton about 33⅓; season medium or medium early.

The seed of this variety distributed was grown by Mr. F. M. Jennings, of Hogansville, Ga., in the season of 1904.

TRIUMPH.

(Pl. II, fig. 2, and Pl. III.)

The variety known as Triumph was originated by Mr. A. D. Mebane, of Lockhart, Tex., who developed it from a single plant found in his general crop in 1899, and it is supposed to be an accidental cross between Texas Stormproof and Peterkin. It has the stock, boll, and nondropping character of the Stormproof, but has a much higher percentage of lint, in this respect resembling the Peterkin. The seeds also are often smooth and black like the Peterkin, while those of the Stormproof are fuzzy or tufted. The valuable qualities of the variety are its nondropping, storm-proof character, and its high percentage of lint. The large, five-locked bolls are of such a shape that they hold the seed cotton well all through the autumn, despite winds and rains, and yet they are very easily picked. The long stems allow the bolls to droop and become inverted, pointing downward when mature, and the dried-up capsule or bur retains the seed cotton and forms a sort of cap over it, like a cap on a haycock, sheltering it from beating rains and thus increasing the storm resistance. The inverted position of the boll also allows the locks to hang together and facilitates picking.

Mr. Mebane's entire crop for several years has given an average of over 38 per cent of lint, with occasional loads yielding 39 per cent or over; in other words, it takes only about 1,300 pounds of seed cotton to make a 500-pound bale of lint. The original cotton from which

this variety was developed yielded only 34 to 35 per cent of lint. The staple is of good quality, averaging from 1 to 1⅛ inches in length, and in some plants reaching 1¼ inches, and it generally ranks a little better than the ordinary big-boll Stormproof cotton, and brings a somewhat higher price.

While not to be classed as an early variety, the plant sets its forms in good season and matures the bolls sufficiently early so that a large proportion escapes injury from the boll weevil and produces a crop. Mr. Mebane has averaged about one-half a bale per acre for his entire place, although for several years past it has been badly infested with the boll weevil.

This variety originated on black, waxy land, and is especially well adapted to that soil. It is rapidly gaining favor in the part of the State where it originated and should be more widely distributed.

Plant strong and thrifty, beginning to fruit near the ground, close to the stalk, of Stormproof type; limbs, short jointed; bolls pendulous when mature, large, ovate, blunt-pointed, 5-locked, opening wide and easy to pick; seeds, medium size, mainly fuzzy or tufted, with some smooth and black like Peterkin, well covered; lint, white, 1 to 1¼ inches long and of good quality; per cent of lint, 37 to 39; season of maturing, medium early.

The seed of this variety distributed was grown by Mr. A. D. Mebane, the originator of the variety, at Lockhart, Tex., in the season of 1904.

TEXAS WOOD (STUBBS'S SELECTION).

(Pl. IV, fig. 1.)

The seed of the strain of Texas Wood cotton which is distributed with this circular was produced by Mr. P. S. Stubbs, of Clio, Marlboro County, S. C. The original selections were made from a field of Texas Wood cotton grown from seed distributed by the Department of Agriculture. The strain, it is claimed, has been produced by the careful selection of choice stalks every year since 1899, and as a result the percentage of lint to seed cotton has been gradually increased. In the original variety the seed cotton yielded only about one-third lint, or 33⅓ per cent. The improved strain, it is claimed, last season gave 42.78 pounds of lint per hundred pounds of seed cotton.

The variety is said to be very hardy, withstanding exceedingly well both extremely wet and dry seasons. It does best in moderately dry seasons and on rather light soil. It does not mature as early as some varieties, but is about medium in season. The plant is rather large, with the limbs beginning near the ground, and shows no tendency toward a clustering of the bolls.

Plant robust, productive, of the Peterkin type; bolls medium size, ovate or round; blunt-pointed, 4 to 5 locked, opening well; seeds small, 7 to 10 per lock, gray, fuzzy; lint of good Upland quality, 1 to 1⅛ inch in length; season of maturing medium.

The seed distributed by the Department was especially selected by Mr. Stubbs in the season of 1904.

Long-Staple Upland Varieties.

SOUTHERN HOPE.

(Pl. IV, fig. 2.)

This variety is stated by Prof. S. M. Tracy to have been originated by Col. F. Robieu, of Louisiana, from seed said to have come from Peru. It is one of the old varieties, but after being in cultivation a quarter of a century still remains a favorite in some sections and has been preserved nearly pure by a number of cultivators.

There is a growing opinion that cottons of better staple should be more extensively cultivated. In some sections a prejudice exists against the growing of varieties of long-staple cotton, but this is mainly directed against the varieties with a staple of from $1\frac{1}{2}$ to $1\frac{5}{8}$ inches in length. The varieties of medium long staple, like the Southern Hope, yield nearly or quite as heavily as the ordinary Uplands and always sell for a considerable premium over the short staples.

Plant pyramidal, spreading, open, rather long jointed; bolls 4 and 5 locked, medium size, ovate, blunt-pointed, opening well, and easy to pick; seeds medium size, white, fuzzy or tufted; lint white, averaging $1\frac{1}{4}$ inches in length, fine, and fairly strong; per cent of lint to seed cotton, 30 to 32; season of maturing, medium.

The seed of this variety distributed by the Department of Agriculture was grown by Mr. Marx Schaefer, at Yazoo City, Miss., in the season of 1904. Mr. Schaefer has been selecting and improving the variety for several years, and it is believed that the seed distributed is the best obtainable.

Sea Island Varieties.

CENTERVILLE.

The Centerville Sea Island cotton, which is immune to the serious malady known as wilt or black-root, was produced as a result of special breeding experiments conducted by Mr. W. A. Orton, of the Department of Agriculture. It is recommended for cultivation in the Sea Island cotton growing districts of Georgia and Florida on all soils infected with wilt. A special circular is distributed with the Centerville cotton, and this variety is referred to here simply to show the general plan of the entire cotton distribution for the season.

METHODS OF CULTIVATION AND GINNING.

SHORT-STAPLE UPLAND VARIETIES.

The methods of cultivation which should be pursued in growing the varieties of short-staple Upland cotton distributed are the same as those used for any ordinary Upland cotton. No exact directions can

be given with respect to the distance apart of the rows or the distance between the plants in the row, as the space required by each plant is determined by the fertility of the soil in each case. The varieties distributed are all quite similar in size and habit of the plant. Under ordinary conditions satisfactory results would be obtained with them by planting the rows 4 feet apart and the plants from 18 to 24 inches apart in the row. On rich soil this distance should be somewhat increased, while on sterile land closer planting would be desirable.

LONG-STAPLE UPLAND VARIETIES.

Southern Hope, while producing a medium long, fine staple, is in size and general appearance very similar to ordinary short-staple varieties, such as Parker and Peterkin, and the same cultural methods are to be recommended as are used with the ordinary short-staple sorts. In picking, handling, and ginning, however, more care is required if the highest market price is to be realized. Greater care should be exercised in the picking to avoid getting the fiber mixed with fragments of leaves, bolls, and twigs. Fiber from immature and weather-stained bolls should also be rejected. Pickers accustomed to picking ordinary cotton are liable to be too careless in picking long-staple cotton owing to their endeavor to gather large quantities and increase their wages. In fine grades of long-staple Upland cotton it would probably also be found desirable to spread the seed cotton on a platform in the sun for a few hours to dry before storing it.

The difficulty of properly ginning long-staple Upland cottons has been considered an obstacle to their general cultivation. It is generally recognized that long-staple Sea Island sorts require to be ginned on a roller gin, as the saw gins tear and break the fiber to such an extent as to greatly reduce its value. It is also very generally supposed that the long-staple Upland cottons require to be ginned on a roller gin, and this understanding has prevented many from attempting to grow these cottons, as roller gins are ordinarily only accessible to growers in regions where Sea Island cotton is cultivated. Experience has shown, however, that long-staple Upland cottons may be ginned on ordinary saw gins if care is used in the process. Before ginning these cottons the gin saws should be sharpened square across the teeth and then dulled somewhat by use in ginning ordinary short-staple cotton. It is also important to run the gin at a lower rate of speed than in ginning ordinary short-staple cottons, 300 revolutions per minute being usually recommended. If these precautions are observed the long-staple Upland cottons may be very satisfactorily ginned on any ordinary saw gin.

It is also very important that growers of long-staple Upland cottons give special attention to the marketing of the product. In 1902

the writer saw several bales of long-staple Upland cotton sold to a buyer, at a small interior town in South Carolina, for 10 cents, which were certainly equal to bales of similar cotton which he saw sold in the New Orleans market the week following at 15 cents, when ordinary cotton was selling at 8¼ cents. Many of the failures with long-staple Upland cotton have been due to the lack of experience on the part of the grower in the matter of marketing. Some buyers take advantage of the growers' ignorance, purchasing cotton for 10 cents that is worth 15 cents and realizing the difference themselves. Until buyers inform themselves on the value of long-staple cotton and pay reasonable prices, it will have to be consigned to general long-staple markets, such as New Orleans, Memphis, or Savannah, or to some of the large New England markets, such as Providence or Boston.

HOW TO GROW PURE SEED OF GOOD QUALITY.

It is a well-known fact that varieties of cotton become mixed and impure unless special care is taken to prevent crossing with other varieties. If growers receiving seed of any of the varieties sent with this circular desire to grow the same sort another year, precaution should be taken to plant the seed in an isolated patch, situated as far as possible from any other varieties. It should be at least one-fourth of a mile from any other cotton and preferably in a field surrounded by a forest, particularly on the side nearest to other cotton fields. Before any seed is gathered for planting, all plants which are not true to the type of the variety should be carefully weeded out.

If it be desired to keep the variety up to its full productiveness and better adapt it to local conditions, this may be easily accomplished by following a simple and inexpensive method of selection. Before beginning the picking go over the patch carefully and select and mark with a white cloth the best plants; that is, those most productive, earliest in ripening, and having the largest, best formed, and most numerous bolls. Care should also be exercised to select plants that are true to the type of the variety. Before each picking, send a careful man over the patch to pick the seed from the selected plants. Preserve and gin this seed separately to avoid mixing, and use it to plant the crop the following year.

If this simple method of selection is carried out each year, the yield will doubtless be greatly increased and much more added to the crop than would result from special fertilization or cultivation, though these factors should by no means be neglected. The importance of careful seed selection is seldom fully recognized, and growers are urged to give this factor of cotton culture more careful attention.

23513—05——2

REPORT OF RESULTS DESIRED FOR PUBLICATION.

In order to determine the comparative value of the different varieties of cotton in various cotton-growing regions, the growers receiving this seed are requested to give it a thorough trial in comparison with the variety or varieties that they ordinarily grow, and be prepared in the autumn of 1905 to report the results of the test to the United States Department of Agriculture. A report will then be requested covering the following points:

(1) Character of the soil.

(2) Character of the season.

(3) Total yield of seed cotton produced. (Determined by actual weighing.)

(4) Total yield of lint produced. (Determined by actual weighing.)

(5) Size of patch grown. (Determined by actual measurement.)

(6) Yield per acre. (Estimated from the patch grown.)

(7) Rating of the variety for your section—whether *excellent*, *good*, *fair*, or *poor*.

(8) Name of the variety ordinarily grown by the planter making the test.

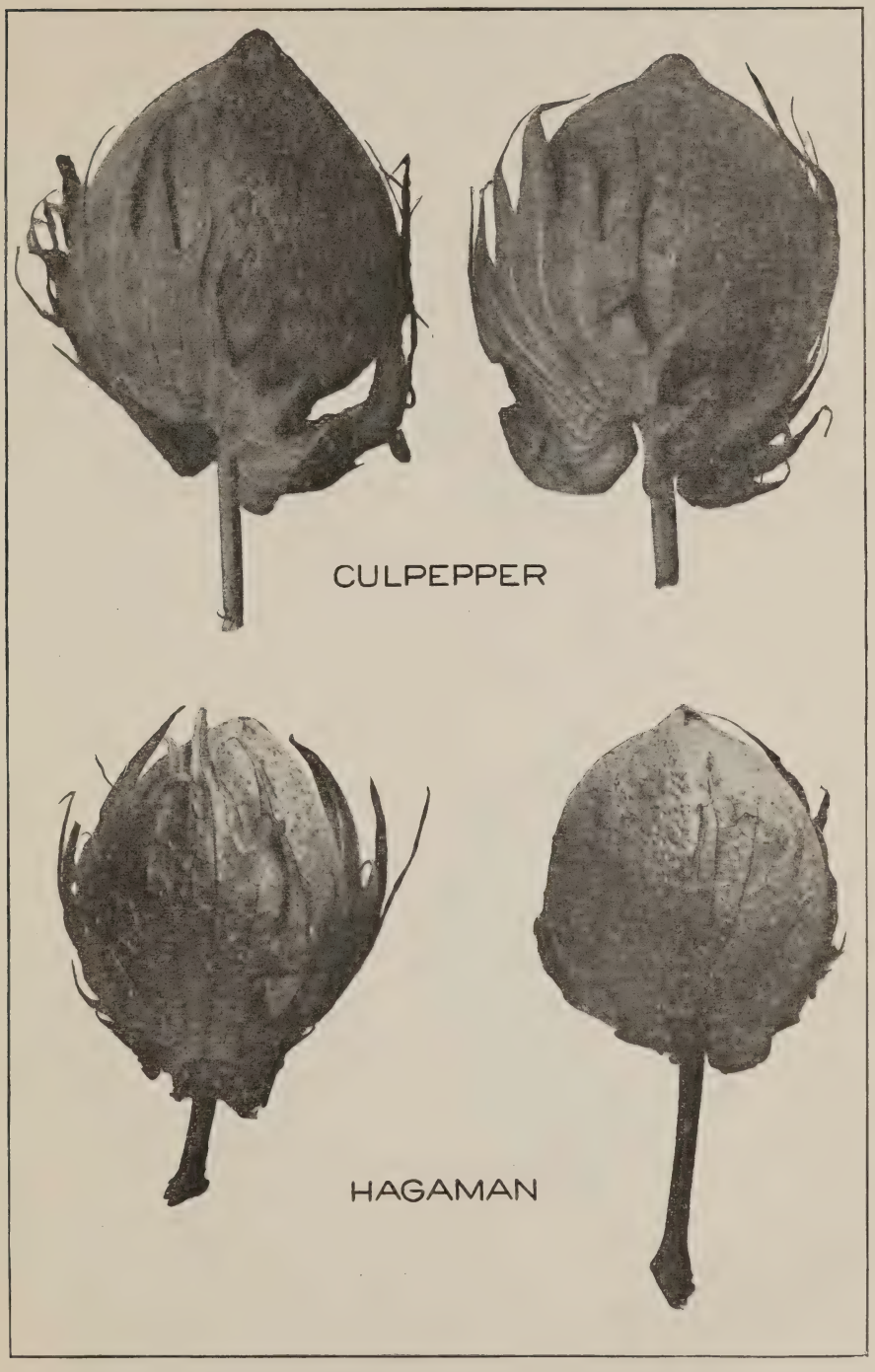
(9) Yield of ordinary variety this year on same soil as the variety under consideration.

It is especially requested that growers carefully note the points enumerated above in order that they may secure the necessary data and be ready to supply accurate information when it is called for next autumn. If data sufficiently accurate are furnished, a report will be compiled and issued giving the results of the various trials in all sections, and this report will be sent to all planters cooperating in the experiment. In this way it is hoped to obtain valuable and reliable information regarding the varieties best adapted to various sections of the cotton belt.

Growers receiving this seed, who are willing to cooperate with the Department of Agriculture in making the above test, are requested to fill in and return the accompanying franked postal card, which requires no postage.

HERBERT J. WEBBER,
Physiologist in Charge of Laboratory of Plant Breeding.

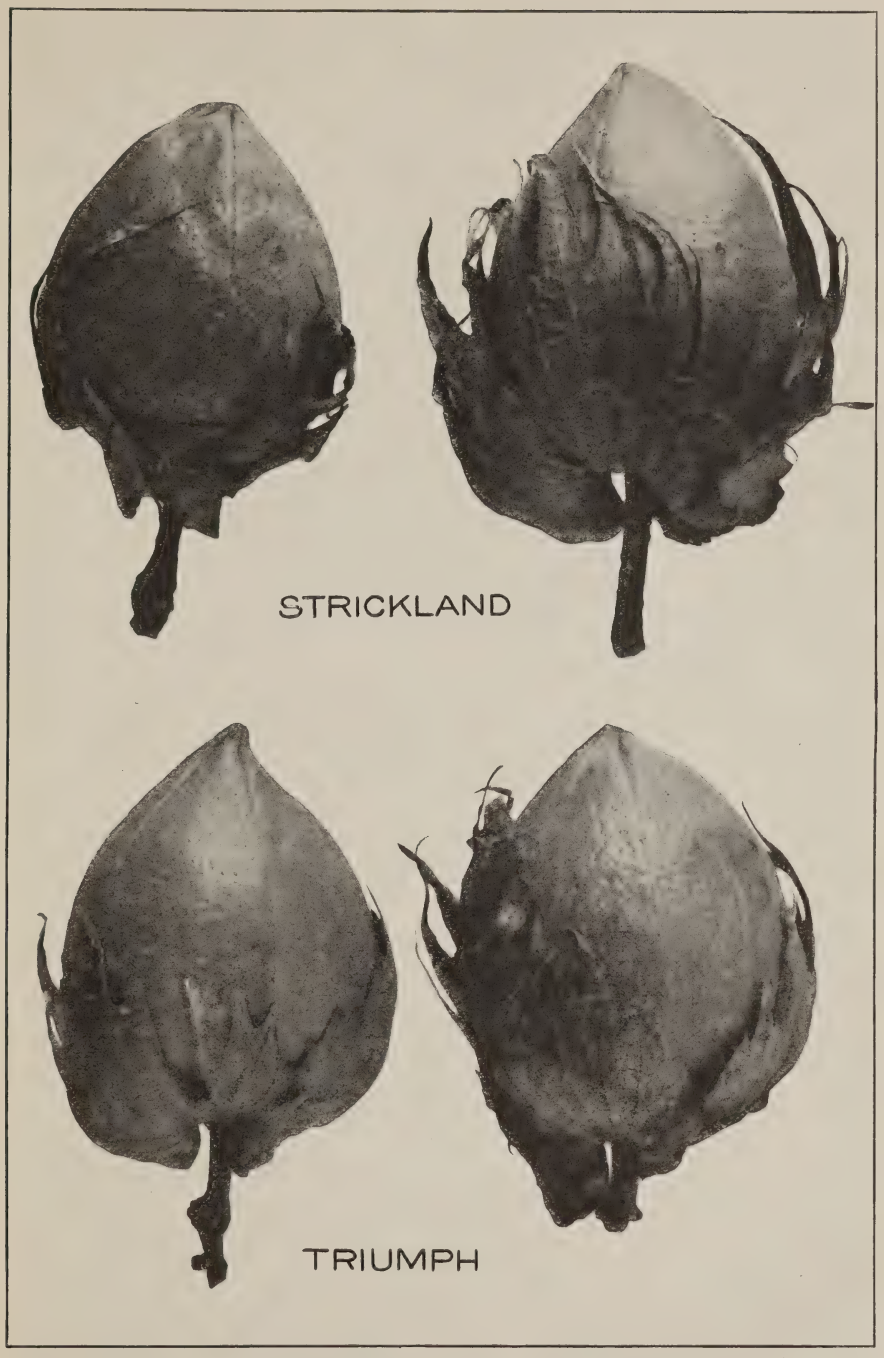
Approved:
A. F. WOODS,
Pathologist and Physiologist.



MATURE UNOPENED BOLLS OF COTTON.

FIG. 1.—CULPEPPER. FIG. 2.—HAGAMAN.

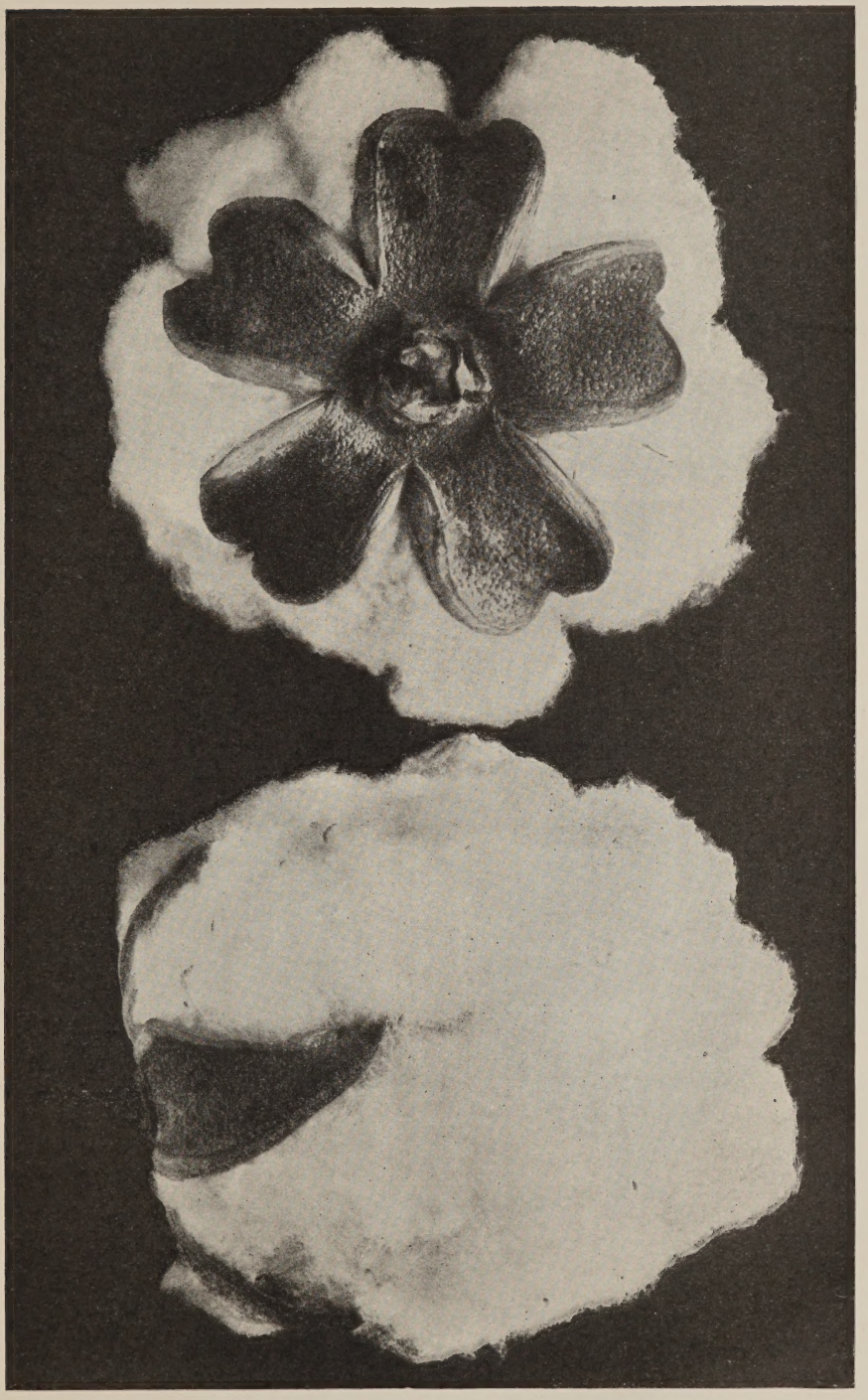
Natural size.



MATURE UNOPENED BOLLS OF COTTON.

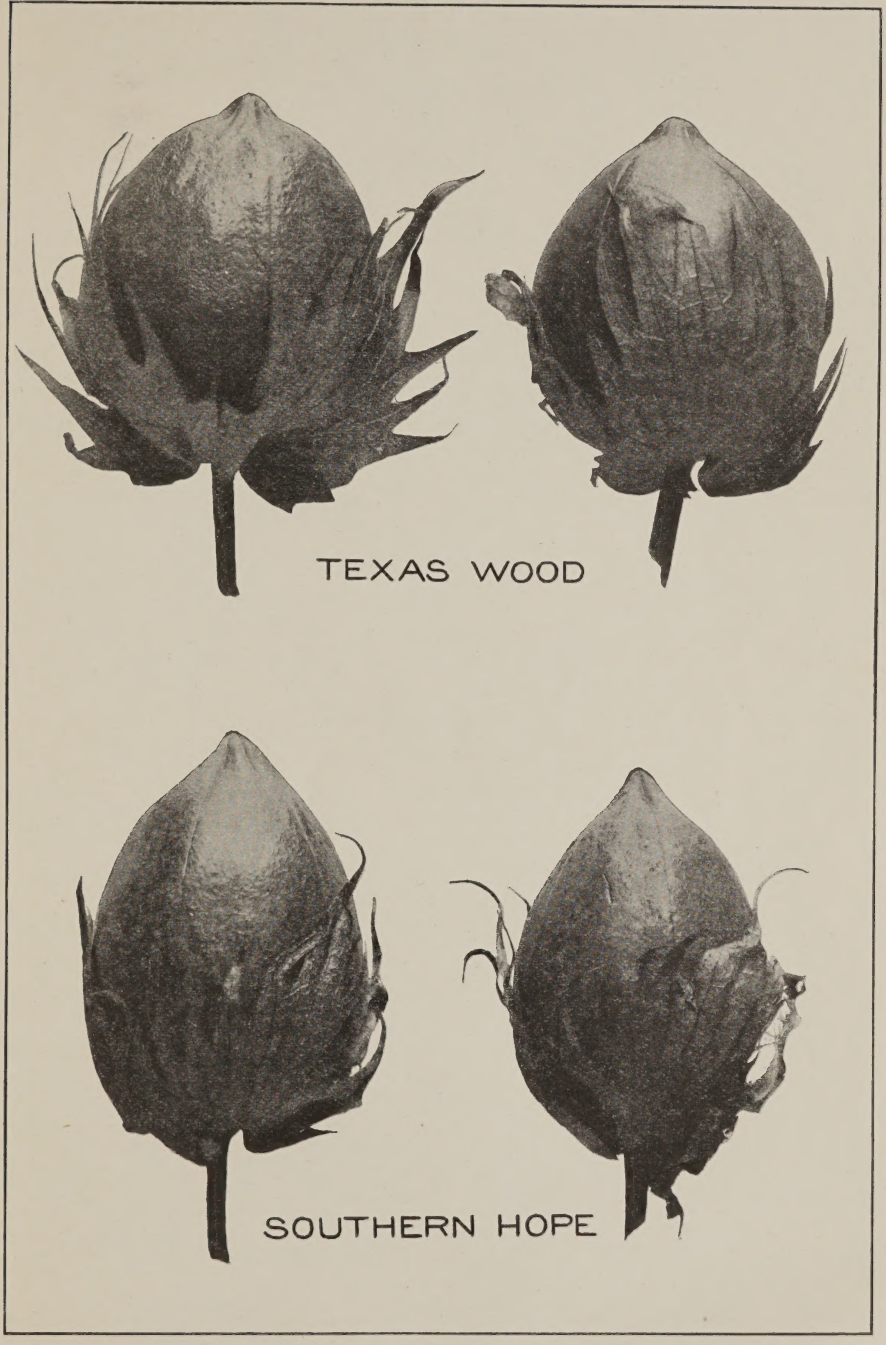
FIG. 1.—STRICKLAND. FIG. 2.—TRIUMPH.

Natural size.



MATURE OPEN BOLLS OF TRIUMPH COTTON, ILLUSTRATING STORMPROOF CHARACTER.

Natural size.



MATURE UNOPENED BOLLS OF COTTON.

FIG. 1.—TEXAS WOOD. FIG. 2.—SOUTHERN HOPE.

Natural size.